

REMARKS

Claims 5-7, 15-17 and 19-24 are all the claims pending in the application, prior to the present Amendment.

Claims 5, 6, 17, 19 and 20 have been rejected under 35 U.S.C. 103(a) as being unpatentable over US 2003/0125479 A1 to Kinsho et al.

Applicants submit that Kinsho et al do render obvious the subject matter of the above claims and, accordingly, request withdrawal of this rejection.

Applicants have amended claim 5 to incorporate the recitations of claims 6 and 15 to state that the fine particle powder (E) is a copolymer of methyl (meth)acrylate and hydroxyethyl (meth)acrylate and having a cross-linked structure formed by crosslinking a hydroxyl group with an organic polyisocyanate Applicants have canceled claims 6 and 15.

In addition, applicants have amended claim 5 to state that the thermoplastic polyurethane resin powder (B) and the fine particle powder (E) are polymerized and then dry-blended at room temperature to form a mixture. Support for this amendment can be found in paragraphs [0062] and [0063] of the specification and in Examples 5 to 7 of the specification.

Thus, the present invention as set forth in claim 5 as amended above is directed to a powdered resin composition for slush molding comprising a thermoplastic polyurethane resin powder (B) as the main component and a fine particle powder (E) of a copolymer of methyl (meth)acrylate and hydroxyethyl (meth)acrylate and having a cross-linked structure formed by crosslinking a hydroxyl group with an organic polyisocyanate as a powder flowability improver, wherein the fine particle powder (E) is not melted in the temperature range of 200 to 300°C, the resin powder (B) has a volume average particle diameter in a range from 70 to 300 µm and is capable of melting at 200 to 300°C, and the thermoplastic polyurethane resin powder (B) and the

fine particle powder (E) are polymerized and then dry-blended at room temperature to form a mixture, wherein the fine particle powder (E) is contained in an amount from 0.1% by weight to 1.5% by weight to the thermoplastic polyurethane resin powder (B).

Applicants submit that Kinsho et al do not disclose or suggest the powdered resin composition for slush molding of the present invention comprising a thermoplastic polyurethane resin powder (B) as the main component and a fine particle powder (E) of a copolymer of methyl (meth)acrylate and hydroxyethyl (meth)acrylate and having a cross-linked structure formed by crosslinking a hydroxyl group with an organic polyisocyanate as a powder flowability improver, wherein the thermoplastic polyurethane resin powder (B) and the fine particle powder (E) are polymerized and then dry-blended at room temperature to form a mixture.

Applicants have argued that Kinsho et al do not disclose the claimed resin powder composition because the claims require that powder B and powder E are dry-blended at room temperature which produces a final mixture containing essentially no particles adhered to one another.

The Examiner states in the sentence beginning at page 6, line 1 of the Office Action that there are two reasons why applicants' arguments are not convincing. The Examiner has identified these reasons with the reference numerals 1) and 2). Applicants reproduce below the Examiner's reasons and his discussion of these reasons. Applicants first reproduce and discuss reason 1) and then reproduce and discuss reason 2).

The first reason set forth by the Examiner is reproduced as follows:

There are two reasons why the arguments are not convincing: 1) the claim language leaves open the possibility that the powders may be attached to one another

Regarding 1), the claims merely limit to a powdered resin composition for slush molding wherein the resin powder (B) and the powder (E) are "dry-blended at room temperature";

this is not specific enough language to require that the two powders are first polymerized and then dry-blended at room temperature to form a mixture with no adherence to one another. The limitation does not exclude the possibility the powders are prepared together and then dry blended with something else such as the silica fine powder.

In response, applicants have amended claim 5 as above to recite that the thermoplastic polyurethane resin powder (B) and the fine particle powder (E) are polymerized and then dry-blended at room temperature to form a mixture. Thus, claim 5 now contains specific language to require that the two powders are first polymerized and then dry-blended at room temperature to form a mixture with no adherence to one another. Accordingly, applicants submit that the first reason set forth by the Examiner is no longer applicable.

The processes of polymerizing and then dry-blending at room temperature to form a mixture are disclosed in the specification, for example, in paragraphs [0062] and [0063], Examples 5 to 7 and Example 1. Applicants reproduce paragraphs [0062] and [0063] below, reproduce portions of Examples 5 to 7, and summarize below Example 1.

[0062]

Examples of a method for mixing the resin powder composition for slush molding of the invention may be as follows:

- (1) a method of dry blending a thermoplastic polyurethane resin powder (B), a fine particle powder (A) of a vinyl type copolymer having a cross-linked structure, and if necessary, an additive (D);
- (2) a method involving producing a thermoplastic polyurethane resin powder (B) in the presence of the additive (D) added if needed and dry blending a fine particle powder (A) of a vinyl type copolymer having a cross-linked structure; and
- (3) a method involving producing a thermoplastic polyurethane resin powder (B) in the presence of a pigment if needed and dry blending the obtained (B), the above-mentioned (A), and an additive (D) added if needed, other than pigments.

The method (1) is preferable among them.

[0063]

With respect to the fine particle powder (E) of a vinyl type copolymer having a cross-linked structure, a resin powder composition for slush molding can be obtained in the same methods as those of the case of the above-mentioned (A). The methods (1) and (2) are preferable among them.

Examples 5-7 contain the following disclosures:

Example 5

A resin powder composition (S5) for slush molding was obtained in the same manner as Example 1, except that 1 part of the fine particle powder (E-1) was used in place of 1 part of the copolymer fine particle powder (A-1) of Example 1.

Example 6

A resin powder composition (S6) for slush molding was obtained in the same manner as Example 1, except that 1 part of the fine particle powder (E-2) was used in place of 1 part of the copolymer fine particle powder (A-1) of Example 1.

Example 7

A resin powder composition (S7) for slush molding was obtained in the same manner as Example 1, except that 1 part of the fine particle powder (E-3) was used in place of 1 part of the copolymer fine particle powder (A-1) of Example 1.

Further, in Example 1, thermoplastic urethane resin powder (B-1), polyethylene glycol dibenzoic acid ester and modified dimethyl polysiloxane were mixed by a 100 L-capacity Nauta mixer at 70°C and after being cooled to room temperature, fine particle powder (A-1) was added and mixed to obtain a resin powder composition (S1) for slush molding.

In view of the above, applicants submit that the Examiner's argument that there is not specific language to require that the two powders are first polymerized and then dry-blended at room temperature to form a mixture with no adherence to one another is now moot.

The Examiner has asserted that the claims of the present application also leave open the possibility that the powders are surface crosslinked by a crosslinking agent. However, mixing by dry-blending at room temperature implicitly indicates that no chemical reaction such as a crosslinking reaction occurs under the condition and, therefore, the possibility that the powders are surface crosslinked by a crosslinking agent is excluded in the present claims.

Accordingly, applicants submit that the claim language of the present claims results in a final mixture containing essentially no particles adhered to one another.

Turning now to reason 2) set forth by the Examiner, the Examiner has asserted that

2) as cited in the amended rejection above the powders (A) and (B) of Kinsho may be separated to form a mixture Regarding 2), Kinsho discloses that the particles (A) and (3) may be separated to form a mixture of particles (A) and (3) [0032]

However, paragraph [0032] of Kinsho et al relates to separating the resin particles (A) and the resin particles (B) in the aqueous dispersion to thereby obtain a mixed aqueous dispersion (X3) composed of resin particles (A) and resin particles (B) and not a powdered resin composition. Kinsho et al do not disclose that this mixed aqueous dispersion is used to form a powdered resin composition.

In addition, claim 5 as amended above recites a fine particle powder (E) of a copolymer of methyl (meth)acrylate and hydroxyethyl (meth)acrylate and having a cross-linked structure formed by crosslinking a hydroxyl group with an organic polyisocyanate as a powder flowability improver. As to the copolymer of methyl (meth)acrylate and hydroxyethyl (meth)acrylate and having a cross-linked structure formed by crosslinking a hydroxyl group with an organic polyisocyanate, the present specification discloses in paragraphs [0022], [0032] and [0033] as follows:

Among them, in terms of the compatibility with urethane resins, (j) alkyl (meth)acrylate and (a3) aromatic vinyl type hydrocarbons are preferable and methyl acrylate, methyl methacrylate, and styrene are more preferable. (Paragraph [0022])

Among them, in terms of the compatibility with urethane resins, hydroxyl-containing vinyl type monomers, carboxyl-containing vinyl type monomers, and amino group-containing vinyl type monomers are preferable and hydroxyethyl (meth)acrylate and (meth)acrylic acid are more preferable. (Paragraph [0032])

The crosslinking agent component (a04) is not particularly limited if it is a compound having two or more groups having reactivity on active hydrogen and examples may include an organic polyisocyanate (a041), a polyethoxide (a042), and a polycarboxylic acid (a043). Among them is the organic polyisocyanate (a041) preferable. (Paragraph [0033]).

Therefore, a fine particle powder (E) becomes to have an affinity with a thermoplastic polyurethane resin powder (B) when heated in the slush molding process even though the particle powder (E) does not melt in the molding process. See paragraph [0065] of the specification. The surface of particles (B) and (E) have affinity with each other because the monomers that are used are preferably selected in terms of compatibility with urethane resins and the molded product, accordingly, becomes improved in mechanical properties. This unexpected effect is not taught in Kinsho et al.

In view of the above, applicants submit that Kinsho et al do render obvious the subject matter of the above claims and, accordingly, request withdrawal of this rejection.

Claim 16 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsho et al (US 2003/0125479 A1) with further evidence provided by Toyama et al (US 4,686,138).

Claims 7 and 15 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsho et al (US 2003/0125479 A1) in view of Suling et al (US 4,233,424).

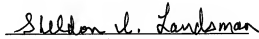
Claims 16, 7 and 15 each depend from claim 5. Applicants submit that these claims are patentable over Kinsho et al at least for the same reasons that claim 5 is patentable over Kinsho et al. Further, Toyama et al and Suling et al do not supply the above discussed deficiencies of Kinsho et al.

Accordingly, applicants request withdrawal of these rejections.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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